Teachers’ Attitudes and Beliefs Concerning Recommended Practices to Promote Children’s Healthy Eating and Physical Activity in Childcare Centers

Introduction:

The increase in the prevalence of obesity in the United States has been the subject of much public concern. This disturbing trend has been observed even in young children. The prevalence of obesity in children 2-5 years old increased from 5.0% in the 1971-1974 National Health and Nutrition Examination Survey to 10.4% in the 2007-2008 survey. In the 2010 North Carolina Pediatric Nutrition Surveillance System, which looks specifically at low-income children, 16.2% of 2-5 year children were overweight (85% - <95% BMI-for-age) and an additional 15.5% were obese (>95% BMI-for-age). One study showed an association between obesity in older children (ages 5-18 years old) and reduced quality of life and there is evidence that obesity in childhood tracks into adolescence and adulthood. We also know that patterns of physical activity and eating behaviors that are established in early childhood influence these behaviors in adulthood.

An increasing number of children spend time in childcare. According to the U.S. Census Bureau, in 2010 approximately 43.2% of children under 5 years old who live with their mother are in childcare. An informal review of North Carolina CACFP’s records from January through March of 2012 indicated that children in North Carolina CACFP participating centers were consuming an average of 2-3 meals and/or snacks per day in childcare (personal communication). This suggests that childcare facilities play an important role in establishing healthy physical activity and eating behaviors in young children.

In recognition of the important role of childcare institutions, numerous governmental and private institutions have published recommended childcare practices related to nutrition and physical activity. The purpose of this study is to determine the attitudes and beliefs of teachers in childcare settings toward the subset of recommendations over which they have control and to explore the barriers and solutions to their implementation.

Methods:

A literature search was conducted on current recommendations concerning teachers’ behaviors that promote healthy eating and physical activity in children ages three to five years old in the childcare setting. Table 1 lists the recommendations and the organization that made them. An interview guide was then developed, based on these findings, to explore the attitudes and beliefs about these recommendations and to explore barriers and solutions to their implementation. The interview guide was modified iteratively to optimize the flow of the interviews and to allow for more in-depth exploration of some of the issues that were revealed.
### PROMOTING HEALTHY EATING

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### PROMOTING PHYSICAL ACTIVITY

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\[\begin{array}{l}
\text{a. Mentioned only in NAP SACC’s “Consultant Technical Assistance Manual” p. 13.} \\
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\text{KEY:}

DCDEE: North Carolina Department of Development and Early Education regulations

CFOC: “Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition (CFOC3)" 10

NAP SACC: “Nutrition and Physical Activity Self-Assessment for Child Care”11,12

CCCBP: “The Child Care Champions Best Practices” from the Colorado Department of Public Health 13

NN: “Influential Factors of Caregiver Behavior at Mealtime: A study of 24 Child-care Programs” by Nahekan-Nelms14

WWECE: “What works in early child education” Wisconsin Department of Health Services, Division of Public Health15

Childcare centers within easy driving distance of Chapel Hill, NC and which cared for 50 or fewer children were identified by consultants from the North Carolina Child and Adult Care Food Program. I requested that they include centers which served children of varied socioeconomic backgrounds, although all were participating in the CACFP program, and be located in both urban and rural locations. Directors from these centers were contacted and arrangements were made for me to interview their preschool teachers. All of the interviews took place at the centers, with 1-3 teachers participating in each interview. Another interviewer was present at some of the interviews. Interviews were conducted between June 21st and July 13th, 2012. At one of the centers, several of the teachers spoke Spanish more fluently than they spoke English, and these interviews were conducted in Spanish. All interviews were recorded.

\text{Results:}

Eleven childcare centers were identified. Of these, the directors at nine of the centers agreed to allow their teachers to be interviewed. The centers were located in Orange, Guilford, Alamance and Durham Counties. In all, I spoke with 23 teachers over 18 interview sessions. All but two of the Centers had received a 5-star rating from the North Carolina Department of Child Development and Early Education (the highest rating) and the other two centers had received a 4-star rating.16
Recommendations concerning best practices were taken primarily from “Caring for Our Children: National Health and Safety Performance Standards” (CFOC). Additional recommendations were taken from the “Nutrition and Physical Activity Self-Assessment for Child Care” (NAP SACC) and from NAP SACC’s “Consultant Technical Assistance Manual”, from “The Child Care Champions Best Practices” from the Colorado Department of Public Health (CCCBP), Wisconsin’s state initiative, “What works in early child education” and from the list compiled by Dr. Marcia Nahekian-Nelms in her 1997 article, “Influential factors of caregiver behavior at mealtime: a study of 24 child care programs” (see references in Table 1). Her paper notes that this list was compiled from recommendations from the American Diabetic Association (now the Academy of Nutrition and Dietetics), the Society for Nutrition Education and the National Association for the Education of Young Children. Recommendations were selected for inclusion based on their pertinence to aspects of child care over which teachers had control, with an emphasis on modeling behaviors or behaviors which promoted an environment in which modeling could occur.

While I have included a brief description of the rationale cited for each of the recommendations, the reader should refer to the published guideline for a more complete description of the scientific literature supporting each of them.

Findings:

PROMOTING HEALTHY EATING

1. Socialization During Meals:

This recommendation is included in all sources noted above, including CFOC’s standard 4.5.0.4. The rationale is that it provides an opportunity for teachers to role-model appropriate eating behaviors, including engaging in pleasant social interactions, and it provides an opportunity to talk and teach about nutrition. It also helps prevent negative table behaviors.

The policy at all but one of the centers was that teachers were to sit with the children during meals. The majority of teachers found the experience enjoyable and valuable. Comments included “It’s the relaxing, social part of the day” and “I love sitting with the kids” Multiple teachers mentioned that it provided valuable opportunities to teach about appropriate table talk and table manners and to talk about the food they were eating and to integrate this with the curriculum. Many teachers noted that the children were more willing to try new foods and ate more when the teachers were sitting with them.

Although most of the teachers cited no significant barriers, a few mentioned that the child to teacher ratio was important; sitting with children was harder to do with a larger ratio because it was harder to fit around table and they had other responsibilities that they had to attend to. This was more of a problem at centers where the day was tightly scheduled, with another class needing to use the cafeteria space (one center) or when naptime immediately followed lunch. In this case, teachers felt compelled to clean up or set up for nap before the meal was finished unless they had an assistant who could perform these functions.
One teacher at the only center not doing this mentioned that her size was a barrier. She was overweight and felt that she could not be comfortable sitting at the child-sized table, nor was there room for her in the eating area. Multiple teachers at other centers, including teachers who were overweight themselves or who worked with overweight teachers, stated that this was not a problem. The larger teachers were comfortable sitting in adult-sized chairs at child-sized tables.

One teacher from the center not serving meals family style felt that she would not be able to focus on the needs of the children if she were sitting and eating with them. However, the more common attitude was that sitting with the children made it easier to engage with them. Another barrier mentioned in a center that served breakfast was children arriving at different times. At this center, children ate breakfast in shifts in the classroom and teachers had the dual responsibilities of sitting with the children and greeting children as they came in. They would have preferred to have a rule requiring that children arrive by a specified time in the morning, allowing all the children to be served together. Teachers stated that family-style dining was more manageable when the teacher sitting with the children has no other responsibilities during the meal.

2. Eating the same foods as the children:

The recommendation that teachers eat the same food as the children is mentioned briefly in CFOC 4.5.0.4. and 4.7.0.1, with the rationale that it “strengthens family style eating which supports child’s serving and feeding him or herself.” NAP SACC and CCCBP also recommend that teachers eat the same foods as the children, and Nahekian-Nelms explains the importance of role modeling the enjoyment of eating and of encouraging children to try repeatedly a wide variety of foods, as doing so will promote a healthier diet.

All but one of the centers I visited served the teachers the same food as the children. In these centers and even at the center that did not, the teachers were aware that the children looked to them to model the enjoyment of the food that they were being served and that they had the responsibility to do this with all of the foods being served. Even at the center where teachers did not eat the same foods as the children, the teachers sampled foods as a way to encourage their children to eat. Many remarked that the children would comment if they did NOT try all of the foods. As one teacher explained, “I can’t tell somebody to do something if I’m not doing it myself.”

How difficult this was depended, not surprisingly, on the quality of the food. Another barrier cited frequently was teachers’ own narrow food preferences. These teachers acknowledged that they knew they needed to taste the foods enthusiastically anyway, and several mentioned that trying new food became easier over time. Two teachers expressed gratitude to their children for encouraging them to try new foods and noted that the quality of their diets had improved since they began teaching. Teachers mentioned repeatedly that it was only necessary to taste each food to influence the children’s eating behaviors. Most of the teachers ate additional food during their breaks or over the children’s naptime. There was disagreement as to whether having the opportunity to taste foods before eating them with the children or having influence over the menu would be helpful. At one center, the teachers were grateful to the director for bringing in foods for the teachers to try. She and the teachers also
went out together for dinner regularly to restaurants that offered opportunities for the teachers to try new foods.

3. **Refraining from eating unhealthy foods in front of children:**

   The North Carolina Department of Child Development and Early Education (DCDEE) rules require that “Staff shall role model appropriate eating behaviors by consuming only food or beverages that meet the nutritional requirements... in the presence of children in care.” [REF] This is also recommended in CFOC standard 4.5.0.4. which states that “When eating meals with children, the adult(s) should eat items that meet nutrition standards.” NAP SACC further encourages teachers to avoid eating unhealthy foods in front of children, as it provides negative role modeling.

   This was written into the childcare centers’ policy at all the sites that I visited and did not seem to present a problem for teachers. They all felt that this was a good idea and found it easy to leave the room if they wanted to consume anything other than what the children were eating or to consume it in the classroom during naptime.

4. **Encouraging peers to model enjoyment of healthy foods:**

   CCCBP and NAP SACC recommend that childcare providers encourage peer modeling, as children naturally learn behaviors from each other.

   Virtually all of the teachers I spoke with encouraged peer modeling to promote children’s willingness to try new foods. Much of this occurred without teacher prompting. One teacher told me that she valued peer modeling “because actually they sometimes do better for each other than they do for us.” However, the teachers from several centers spoke of the need to do this carefully. As one teacher explained, “We don’t want to create shame around food.” Teachers consistently said that encouraging children to use descriptive words with phrases like “Tell your friend what that tasted like” seemed to promote constructive peer modeling. Teachers were also aware that one of their important roles was to steer children away from negative modeling, such as describing food as “disgusting”. Being able to guide the conversation about food was one of the reasons teachers felt it was important to sit with the children during meals.

5. **Encourage but do not force children to try new foods:**

   CFOC standard 4.5.0.4. states that adults should encourage but not force children to serve themselves all the components of the meal and standard 4.5.0.8. states that “Experiences with new foods can include tasting and swallowing but also include engagement of all senses (seeing, smelling, speaking, etc.) to facilitate the introduction of these new foods.” The rationale is that, in addition to learning about the world around them, encouraging children to try new foods will lead to a better balanced diet later in life, and that “it may take eight to fifteen times of offering a food before it is eaten.” NAP SACC also recommends that children be encouraged by staff to try a new or less favorite food, that teachers talk with children about enjoying healthy foods and that support for good nutrition is
visibly displayed in the classroom. NAP SACC notes that children should not *force* to try a new food, as they may be more willing to try a new food when there is no pressure and they are in control. Nahekian-Nelms and CCCBP include similar recommendations.

Teachers mentioned many strategies in addition to modeling their own enjoyment to encourage children to try new foods. Many but not all of the teachers were aware of the benefit of having children repeatedly try foods that they may have rejected before. Two of the centers I visited had policies requiring children to take a certain number of bites of each food, although neither center punished or criticized children for not complying with these rules. One of these centers seemed to have some success with this approach, but teachers at the other center seemed less convinced that it was helpful.

At one center, the teachers engaged the children’s curiosity by encouraging them to “become an explorer with your taste buds” with statements such as, “put it in your mouth and see what it feels like”. One teacher took photographs of the children tasting different apples and posted them on the classroom wall with the words that described the flavors that were associated with each taste. Teachers understood the utility of integrating food-tasting experiences with other aspects of the curriculum (see below).

Other teachers experimented with making the food more palatable for a particular child. For example, one teacher who had experience working with children with special needs remarked, “I had one kid where the texture of the food [a banana] wasn’t working too good, so I found that banana with peanut butter...he...got past what the texture was like.” She went to say that this child will now eats bananas when they are offered in small pieces. Many teachers mentioned the request for second helpings of one food as an opportunity to encourage children to try the foods already on their plate. However, Nahekian-Nelms suggests that this practice may not promote healthy eating habits.

Several teachers mentioned the benefit of being “silly”. One teacher described saying ““Now everyone eat their green beans at once. One, two, three” after which all the children would put it in their mouth at the same time.” This same teacher found using silly names, like calling asparagus ‘Shrek dreadlocks’ encouraged children to try new foods.

6. **Promoting the awareness of satiety cues:**
   a) **Allowing children to serve themselves an appropriate portion from a common serving dish:**

This recommendation is part of CFOC standard 4.5.0.4. The primary rationale is to help the children develop hand-eye coordination. CFOC standard 4.3.2.2 also mentions that serving children in appropriately sized plates, bowls and cups contributes to their learning appropriate portion sizes. Nahekian-Nelms suggests that this practice reinforces their innate ability to regulate how much to eat to support ideal growth. NAP SACC and CCCBP recommend that children serve themselves at mealtime for similar reasons.

This practice generated the most discussion and was the least widely adopted. Of those centers where children were *not* allowed to serve themselves, the reasons most commonly cited were that it would make a mess, that it was unsanitary and that doing so might be out of compliance with CACFP
rules concerning portion size. Several teachers were concerned that there might not be enough food for everyone if the children spilled something, one teacher was afraid that the children would burn themselves with hot food, and another teacher, who had tried and abandoned this practice, said that serving took up too much of the meal time.

Concerns about sanitation included both that children would spread germs to each other and that the center would be out of compliance with the county’s sanitation requirements. One teacher told me “Every child would have to have a pair of gloves that fit them. They would have to have their own serving utensils. Everything would have to be individualized.” She told me that she assumed this because teachers are required by their county sanitarian to wear gloves when they serve the children. Many of the teachers were concerned that since the CACFP requires that children be served specified serving sizes of each of the foods on the menu they would be out of compliance if the children did not serve themselves these amounts. Even at centers that were allowing the children to serve themselves, many of the teachers were very concerned about complying with CACFP rules when the children refused to serve themselves all of the items on the menu.

The teachers at centers where children served themselves uniformly agreed that doing this did make a mess at first. Teachers stressed that it was important for the teachers not to react negatively to the inevitable spills; “[You] don’t ever want to make it a negative, scary thing….the kids are looking to you for how you’re going to react.” One center routinely delivered the food to the classroom with towels. They also recommended that both the teachers and the students wear clothing they did not care too much about, particularly early in the year. Most centers encouraged the children to clean up spills themselves, with assistance, if they needed it. They felt that doing this provided an opportunity to teach self-sufficiency and motivated them to be careful.

Several teachers noted that “The first couple of weeks are always frustrating” but that the job got easier quickly, “usually within a couple of weeks.” Particularly with younger children (2 year olds), they recommended starting out having the children serve only one or two dishes of the meal, and saving serving liquid foods until they had learned to serve more solid foods. Using utensils which were easy to handle and which measured out an age-appropriate serving size helped, and children required frequent reminders to touch only the food that they were going to eat. To speed the process up, teachers recommended having more than one bowl of each item circulating at each table, and early in the year, the centers allowed lunch time to start earlier to provide more time. The kitchen may also have prepared more food, anticipating spills.

The ratio of teacher (or other helper) to child was also considered important. In a classroom with 2 year-old children, the ratio that worked was 1 teacher to 6 children. To keep the ratio manageable when there were more children, the teacher either enlisted a parent helper or older children were given the sought-after job of eating lunch with the 2 year-old children and serving as a role model. Several teachers felt that two years old was too early to start, and that three would be a more appropriate age.
Although CACFP regulations do not require that the children serve themselves all components of the meal, all of the teachers encouraged them to, and some stepped in to serve them the foods that they refused to serve themselves, usually in small portions, so they wouldn’t feel overwhelmed.

The teachers at centers that were allowing the children to serve themselves were convinced that this experience provided valuable opportunities to talk about appropriate portion sizes, as well as to develop fine motor and social skills. They described the excitement expressed by the children at being able to be more independent and uniformly preferred to continue allowing children to serve themselves, despite the acknowledged challenges.

Although some of the teachers at centers not allowing the children to serve themselves seemed adamant that they would never want to try it, one of the more open-minded teachers suggested, “You need structure...If teachers saw it done in an orderly fashion and it didn’t just look like a bunch of chaos, then they’d be willing to do it.”

b) **Allowing seconds helpings:**

CFOC standard 4.7.0.2. explicitly states that second servings should be allowed. Both CCCBP and NAP SACC stress the importance of helping children monitor how much food they need. NAP SACC recommends that teachers make sure that teachers check in with children before removing the plate if they have not eaten at least half of their food, and also that when children request seconds, teachers help determine if they are still hungry before serving additional food.

Approximately half of the centers I visited did not allow children to have second helpings, mostly in centers where children were not allowed to serve themselves. The teachers at these centers did not question this practice. In those centers that did allow the children to have second servings, the teachers uniformly monitored how much and which foods the children were served (either by themselves or by the teacher). Many teachers only allowed seconds of less calorie-dense foods, and many of the teachers encouraged children who seemed to be over-eating or who were perceived as being overweight to slow down and pay attention to how their stomachs felt. Interestingly, most of them were not aware that they were doing this until we had spoken about it. The consensus was that children, particularly younger children, usually regulate their eating well themselves.

c) **Refraining from rewarding a clean plate**

Naheki-Nelms recommends that children should not be required to “clean their plate” and NAP SACC states that, “Children should not be forced to eat if they are full and should be given more food if they are still hungry. Interfering with their internal hunger and satiety cues could lead to unhealthy eating patterns.” CCCBP also refers to the importance of allowing children to follow their own satiety cues.

Most teachers recognized that rewarding children for trying all the food on their plate was preferable to rewarding children who consumed all the food that was served to them. However, there were still a substantial number of teachers who did reward a “clean plate”. These teachers were not
aware of any hazards associated with doing so. In centers where the children served themselves, there was some discussion about the difference between rewarding children for not wasting food that they had served themselves and rewarding them for eating food that they may not have chosen to serve themselves.

7. **Allowing adequate time for children to eat:**

CFOC standard 4.5.0.4. states that “extra assistance and time should be provided for slow eaters” as part of its recommendations concerning socialization at meals, and this is also included in the check list compiled by Nahekian-Nelms. It is not explicitly mentioned in CCCBP or NAP SACC, although both documents encourage establishing a pleasant environment at mealtime.

All the teachers I spoke with seemed reluctant to rush children while they were eating, although they routinely distinguished between children who naturally ate slowly and those who were distracted or uninterested in their food. Refraining from rushing children was generally not difficult. However, at centers with tight schedules, where nap followed immediately after lunch, teachers did sometimes feel compelled to rush children so that they could have adequate time for a nap. At one center where the children ate lunch in a cafeteria used by two different classes sequentially, the teachers noted that it was sometimes difficult to allow the slower eaters to finish. In both situations, having an assistant made it easier to allow the child to finish. None of the teachers perceived this to be a significant problem.

8. **Modeling consumption of healthy foods for celebrations and discouraging consumption of unhealthy foods at these occasions:**

CFOC standard 4.6.0.1. recommends that centers establish a policy concerning food brought in for celebrations, which encourages parents to bring in healthy foods. It also states that portion sizes of sweetened treats brought in from home should be small. NAP SACC provides similar recommendations and suggests that non-food treats be encouraged for celebrations.

Almost all the teachers I spoke with felt strongly that some sweets should be allowed for celebrations. As one teacher put it, “Cupcakes mean birthday.” However, most of teachers recognized the need to limit the amount of “junk foods” consumed by the children in childcare. A few teachers found it difficult to confront parents on this subject and wished that their centers had stronger policies or stronger enforcement of policies on what foods parents could bring in for celebrations. Useful suggestions that emerged were choosing one date in the middle of the month to celebrate all the birthdays that month, having sign-up sheets for non-birthday celebrations and suggestions for parents about appropriate foods to bring in, as well as limiting portion sizes of “junk foods” that parents do bring in. I found it interesting that county sanitation laws often prohibited parents from bringing in foods that were prepared at home, which may encourage parents to choose more processed foods.

9. **Promoting drinking water:**

According to several teachers I spoke with, North Carolina DCDEE required that water be available to children at all times and this regulation has been included in the March 2013 regulations referenced
above. It is also mentioned in CFOC’s standard 4.2.0.6, and NAP SACC further recommends that water be available for self-serve, so that children will learn to drink water to water to quench their thirst.

Teachers uniformly accepted the requirement that children should have access to water throughout the day. They also uniformly drank water themselves. Approximately half of the childcare centers that I visited allowed children to serve themselves water both indoors and outdoors, whereas in the others the teachers served the children water on demand indoors, usually allowing self-serve outdoors. A number of teachers spoke of the concern that water would be all over the floor if the children served themselves. Some of the teachers who served the children water found it disruptive to allow children to ask for water at any time. These teachers encouraged the children to drink at specified times but would provide water if requested at other times, knowing that regulations required them to do so. Solutions to allowing children to serve themselves water were to have access to a water fountain, preferably in the classroom, using a water cooler with a dispenser, allowing children to use a small pitcher or faucet, and providing water bottles to which the children had continuous access. There was general agreement that all of these methods required close supervision. Two teachers mentioned that making iced water available in the summer increased the amount of water children consumed.

10. Teaching children about nutrition during meals and at other times:

CFOC’s standard 4.7.0.1. recommends that teachers “should teach children about the taste, smell, texture of foods, and vocabulary and language skills related to food and eating. The children should have the opportunity to feel the textures and learn the different colors, sizes, and shapes of foods and the nutritional benefits of eating healthy foods” and that curricular activities should “emphasize the pleasure of eating.” The rationale offered is that “enjoying and learning about food in childhood promotes good nutrition habits for a lifetime.” Nahekian-Nelms also recommends teaching about nutrition during meals, and NAP SACC and CCCBP recommend that the classroom environment include references to healthy eating, such as books on display and posters. CCCBP also recommends that lessons about food be used to teach math and science concepts.

There was general agreement among the teachers that sat with children during meals that doing so provided essential opportunities to teach children about the foods they were being served and that this teaching increased the likelihood that children would try unfamiliar foods. Much of the teaching occurred spontaneously during the meal, such as relating food that the children were eating to lessons on the vocabulary of the five senses and on farming. Often teaching at mealtime was motivated by wanting to encourage children to eat certain foods. One teacher gave this playful example: “If they don’t want to eat something like carrots, I say something like, ‘Don’t you want super-hero eyes’ or if they don’t want to drink their milk, I say ‘Don’t you want strong bones like a super-hero?’ and they drink all their milk.” One teacher found that creating chants, such as “Milk gives you strong bones and healthy teeth”, accompanied by miming movements, reinforced important nutritional messages.

In addition to mealtime teaching, almost all of the teachers included models of food in center activities and had posters of foods, as well as episodic formal curriculum on nutrition. The curriculum was often
provided by the center director, and many teachers expressed a desire to learn more about nutrition. Several teachers enthusiastically described food-related field trips, including a trip to the super market, to ethnic restaurants and to a pizza parlor that taught the children to make their own pizzas. All of these teachers noticed that these experiences enhanced the children’s interest in trying previously unfamiliar foods. They also noticed that the children, many of them from low-income families, had had little exposure to these experiences outside of childcare.

Of all the teaching activities described, gardening and cooking appeared to be both most enjoyable and to have the most influence on children’s eating habits. As one teacher put it, “I’ve never met a kid that’s not interested in gardening. Period.” Barriers to gardening mentioned were not having an appropriate space for a garden, finding it difficult to keep the garden watered and “I don’t like bugs and putting my hands [in the dirt]”. One center also mentioned that they needed to be careful not to plant poisonous plants, such as tomatoes, where the younger children might ingest them. North Carolina rule .0604 (cited above) states that “Plants that are toxic shall not be in indoor or outdoor space that is used by or is accessible to children.” However, a recent clarification notes that planting tomatoes is acceptable (personal communication). Advice given by the many teachers who were enthusiastic about gardening included having the garden within the playground fencing, which made caring for the garden easier. One center had a prefabricated play structure that included multiple planters in which children grew vegetables. To make maintenance more manageable, one large center had designated a teacher to oversee the garden and help the other teachers with their lessons on gardening. This teacher did not have a classroom of her own. A few centers enlisted help from parents. Because of drainage problems in the schoolyard, one teacher had the children plant vegetables in pots, and another teacher used an old sand box. Several teachers stressed that the purpose of the garden was to teach children where food comes from and not to grow produce for the center or to take any home. Gardening also provided opportunities to teach math and science.

Many of the teachers I spoke with were doing at least simple cooking activities and were enthusiastic. One teacher described her children’s reaction this way, “They love to do; it gives them a feeling like they’ve done so much if they peel and cut up the fruit.” Cooking also provided valuable opportunities to teach math, science and culture and had a positive influence on children’s willingness to try new foods. It provided an opportunity to involve parents, both by asking them to bring in ingredients or by sharing their family recipes with the children. The most commonly cited barriers to cooking were not having enough space in the classroom and concerns about safety. Some teachers were also concerned about the cost of ingredients and about making a mess. The most frequent advice offered by teachers to their colleagues was to keep it simple and to plan, and to remember, “It’s all about the experience and not the product, as much.” They also encouraged teachers to expect and accept the messes, since the experience for the children was well worth it. Interestingly, the size of the classroom and the availability of kitchen facilities seemed to be having little, if any, correlation with how much cooking was done.

11. Refraining from using food as punishment, reward or to soothe children:
North Carolina DCDEE regulations state, “Discipline shall in no way be related to food...” and “No food shall be withheld or given as a means of discipline.” CFOC standard.5.0.1.1. states, “Caregivers/teachers should not force or bribe children to eat nor use food as a reward or punishment” and explains that this practice can lead to unhealthy eating behaviors. NAP SACC notes that this behavior can encourage children to override their satiety cues and develop other unhealthy eating behaviors and Nahekian-Nelms recommends that, “Food is not used as a reward, punishment or pacifier.”

All of the teachers understood that punishing children by withholding food was never acceptable. Most of the teachers used non-food rewards for good behavior, such as stickers or point systems with non-food prizes. A few teachers did use food rewards and were not aware that there were any risks associated with doing so. Even teachers who were aware of the risks noted that food rewards worked better than non-food rewards and some occasionally resorted to rewarding with food. The practice of soothing children with food was used more widely, although it seemed to be saved as a last resort, when a child was particularly upset.

PROMOTING PHYSICAL ACTIVITY

1. Incorporating physical activity into lesson plans

CFOC standard 3.1.3.1 states that teachers should provide “continuous opportunities to develop and practice age-appropriate gross motor and movement skills” and notes that “Some evidence also suggests that children may be able to learn better during or immediately after bursts of physical activity, due to improved attention and focus” Standard 3.1.3.4. suggests that teachers should consider incorporating structured activities into the curriculum. NAP SACC recommends this approach, both as a way of modeling the importance of physical activity to children and as a means of reaching physical activity targets.

Almost all the teachers I spoke with had learned through their early childhood education that teachers played an important role in promoting the children’s attainment of motor skills. However, many teachers seemed uncertain as to what curricular activities would accomplish these goals. The few teachers I spoke with who were intentionally including physical activity in their lesson plans were enthusiastic about this practice. One teacher described it this way, “I like doing it ‘cause I like to see the kids have fun and you don’t have to worry about telling them ‘don’t do this, don’t do that’ because they’re so excited about what you’re doing that they don’t have time to think about doing the wrong thing.” Many teachers noticed that the children attended and learned better when physical activity was incorporated into the lessons. A few teachers mentioned that sometimes the children became too rowdy, although only one teacher had abandoned this practice because of this. However, more than half of the teachers I interviewed were not incorporating physical activity into their lessons, in large part because they had never thought about it or learned about it. During the interviews, many teachers expressed an interest in learning more about this.
2. **Modeling physical activity by leading active play at least twice a day**

CFOC’s standard 3.1.3.0. recommends that teachers lead two or more structured activities that promote movement over the course of the day, as research has shown that this leads to higher levels of physical activity in young children. NAP SACC gives further support for this in its statement that teacher-led activities provide an opportunity to encourage children to develop specific gross motor skills. It points out “Children who develop appropriate gross motor skills at a young age are more likely to be physically active throughout their lives…Furthermore, children will learn to enjoy physical activity if they are directed by knowledgeable staff who model how physical activity can be fun.”

Almost all of the teachers I spoke with led their children in active play, although likely not as often as recommended. Two of the centers I visited had formal activity programs, such as yoga and dance, once or twice a week. My impression was that teachers at these sites led active play less often, and that the children may have been getting less physical activity at these sites, although I was not able to evaluate this systematically. Almost all the teachers I spoke with wished they had more opportunities to get ideas about leading active play from their co-teachers. One center director had compiled a card file of ideas from teachers and from workshops about teacher-led activities. The file was kept on the playground for teachers to use whenever they needed it. A teacher at another site had written the names of songs, many of which had movements associated with them, on popsicle sticks. The popsicle sticks were kept in a bucket in her classroom and the children could pull one out for the whole class to do. She was compiling lyrics to songs that she knew or which she had made up that reinforced her lessons to share with other teachers at her center. Many teachers mentioned using music to lead physical activity; one teacher described it this way, “It gives them something they LOVE. It incorporates having fun…gross motor, rhythm.” Most of the teachers were also using traditional games like “duck, duck, goose” and “red light, green light” and games they made up themselves to keep the children active.

3. **Modeling physical activity by joining children in non-structured play and encouraging children to do the same**

CFOC standard 3.1.3.4. states that teachers should not sit during outdoor playtime, as they need to model being physically active. NAP SACC goes further, explaining that teachers need to model the enjoyment of physical activity. Wisconsin’s state initiative, WWECE recommends that, “During active (free) play time, adults often or always join children and make positive statements about the activity.”

Most of the teachers I spoke with recognized the need to be actively engaged in playing with the children during unstructured play. As one teacher put it, “Sometimes kids don’t know how to play unless you play with them” and many of the teachers mentioned the children’s need for the teacher’s attention and engagement. A few teachers mentioned the health benefit they derived from playing with the children. Barriers to joining in non-structured play were lack of teachers’ physical fitness and difficulty monitoring children when engaged in play. At one center with highly trained teachers and NAEYC certification, one teacher stated, “Usually we don’t [join in play] because we really want to
encourage them to have these relationships and to play amongst themselves...” The teachers who recognized the need to join in play suggested that the director should “set the expectation from the beginning. Going outside is not a time for the teacher to take a break.” Several teachers pointed out that it was not necessary for the teachers to be as active as the children to engage them were.

4. **Modeling enjoyment of the outdoors by taking children outdoors twice daily and only staying indoors when the weather is hazardous:**

   The North Carolina rule 0.0508 states that children must spend a minimum total of 1 hour outdoors, weather permitting. It specifies that this determination should be made in accordance with the Iowa Department of Public Health’s “Child Care Weather Watch” chart, which is taken from National Weather Service guidelines.

   CFOC’s standard 3.1.3.1. states, “Time spent outdoors has been found to be a strong, consistent predictor of children’s physical activity” and recommends that preschoolers spend 60-90 minutes outdoors in 2-3 occasions during the day. It recommends adhering to the National Weather Service’s guidelines concerning what constitutes hazardous conditions for outdoor play, both to prevent injury to children and to allow outdoor play whenever these conditions are not present. NAP SACC makes these same recommendations, spelling out a simplified version of the National Weather Service’s recommendations. WWECE mentions only the importance of outdoor play.

   The teachers I spoke with uniformly recognized the value of outdoor play. As one teacher explained, “You can see a huge change in behavior and the energy level of the school if they don’t get that outdoor time. They need it.” The decision about whether or not to play outdoors was generally made by the center director, in line with DCDEE guidelines, although at many centers the teachers had some discretion about the duration of outdoor time. Teachers implied that they met these guidelines, but some admitted that they disliked being outdoors in very cold or very hot weather, and no objective measure was made of time actually spent outdoors. A few centers allowed their children to play in rainy weather under an awning, and two centers used spray bottles of water or engaged in water activities to cool children off during the summer. Several teachers commented that having an engaging play area made outdoor time more enjoyable for everyone, and a few mentioned that the play area should be considered an extension of the classroom.

5. **Modeling being prepared for physical activity by dressing appropriately for outdoor play and insisting that children do the same:**

   CFOC standards 3.1.0.2. and 3.1.0.4 recommend that children and teachers, respectively, be dressed in a manner compatible with playing safely outdoors. This is also included in the WWECE recommendations.

   None of the teachers was aware of any problems with teachers dressing inappropriately. Children’s attire was generally not a problem either, although it sometimes took repeated reminders to parents to
clothe their children appropriately for outdoor play. Shoes were a bigger problem than other clothing, either because the shoes were not safe for play or because parents did not want them to get dirty. Keeping a pair of appropriate shoes in children’s cubbies was a practical solution to this problem. All the centers I spoke with kept a collection of clothing to loan children as needed and some centers asked the parents to keep extra clothing in children’s cubbies.

6. **Refraining from withholding play time as punishment:**

CFOC’s standard 3.1.3.1. states, “Active play should never be withheld from children who misbehave.” NAP SACC explains, “Limiting a child’s active playtime as punishment encourages inactivity and could lead to long-term negative attitudes or feelings toward active play.”

This was the policy at all the centers that I visited and none of the teachers questioned its wisdom.

7. **Limiting screen time to 30 minutes once a week for educational purposes or to promote physical activity only and without advertising:**

The North Carolina DCDEE allows the use of television for preschool age children only as a free choice activity, only to meet developmental goals and for a maximum of 2 ½ hours per week. CFOC standard 2.2.0.3. is more stringent, recommending that this be limited to no more than 30 minutes per week and that computer time be limited to 15 minute intervals in this age group. The rationale is that children are already watching television at home, and that allowing its use in childcare would increase the chance that children exceed the American Academy of Pediatrician’s recommended maximum of 1-2 hours per day.

Television and other screen time were rarely used at the centers I visited. The maximum screen time allowed, observed at only one center, was 1 hour, split into two sessions and only on a rainy day. None of the centers allowed commercial television at any time. There was universal acceptance of this policy among teachers and consensus that “They get enough TV when they’re home.”

8. **Children should not be seated for more than 15 minutes at a time:**

This is recommended in CFOC’s standard 3.1.3.1. NAP SACC recommends that children should not be seated more 30 minutes more than once a week. It notes that children become less attentive with extended sedentary periods and puts them at risk for overweight.

Several teachers mentioned that they had learned in their child development training that it was not appropriate to make children stay still, and they did not find complying with this recommendation difficult. Circle time generally lasted about 10 minutes (maximum, at one school only, was 20 minutes) and most centers had the children change centers every 15 minutes. The teachers uniformly agreed that it was rare for a child to choose to stay seated more than 10 or 15 minutes at a time. Even children who became engrossed in a sedentary activity, such as artwork, generally got up and moved around after 15 minutes.

**Discussion:**
Of all of the recommendations explored, those regulated by the North Carolina DCDEE seemed to be most universally accepted by teachers. I was also struck by the similarity in attitudes within centers. The center director clearly played an essential role in establishing teachers’ behaviors around the promotion of healthy eating and physical activity, as well as in shaping their attitudes and beliefs about these recommendations. When recommendations were adopted, teachers frequently spoke of the support they received from the director, through assisting in the classroom, providing reference materials to help teachers plan their classes and providing opportunities for teachers to be trained.

The teachers I spoke with were acutely aware of the degree to which children looked to them as role models. This awareness seemed to be much more pronounced with respect to modeling healthy eating than it was to modeling physical activity. The willingness of teachers to model the enjoyment of foods that they would not normally have eaten was an impressive illustration of this. Sitting with the children and eating the same foods as them were acknowledged to be key elements in providing an environment where role modeling could occur.

Most of the teachers seemed to be aware of and concerned about the high prevalence of obesity. Few of the teachers had been trained in how to encourage children to try new foods or to pay attention to their satiety cues, but many teachers still intervened using common sense, but sometime out of line with recommended practice. In centers not already allowing children to serve themselves, there was considerable resistance to this practice.

Teachers expressed both a need for and an interest in learning more about nutrition. Teachers who were cooking and gardening found these practices to be very valuable tools to engage children in healthy eating. There seemed to be little correlation between center resources and the extent to which cooking and gardening were integrated into the curriculum, suggesting that training in this area would be sufficient to overcome many of the perceived barriers to these practices.

Teachers who had early childhood education degrees had uniformly received training on normal childhood motor development. However, they had received less training on how to teach activities which promote this development, particularly in the area of gross motor development. Teachers expressed particular interest in learning more about how to incorporate physical activity into their lesson plans. They were leading active play, but probably less frequently than recommended, particularly in schools with formal exercise activities taught by other teachers. There was some, but by no means universal awareness the value of teacher involvement in children’s unstructured play and of the importance of role modeling the enjoyment of physical activity.

One limitation of this study is that the childcare centers visited had all received four or five star ratings. It is likely that in a broader sampling of centers I would have encountered less acceptance of and compliance with the recommended standards. However, the barriers to implementation faced by the teachers in this study are likely to be relevant to centers in other settings.

Another limitation of this study was the lack of objective observation of teachers’ behavior. This makes it impossible to state with certainty to what extent teachers were following recommendations. Nonetheless, learning more about their perceptions can help inform efforts to improve compliance with
and acceptance of those recommendations that are not currently being followed, as determined by other studies.

Unfortunately, I did not include a question about parent education around nutrition or physical activity, although these topics are discussed in both CFOP and NAP SACC. Even without prompting, many teachers expressed frustration around the lack of parental reinforcement of their efforts to promote good nutrition in their children. Comments I heard most often were that parents were usually pleased to hear that their children had tried a new food, but teachers also frequently heard comments like, “We don’t eat that at home because I don’t like it.” Multiple teachers complained about the quality of food that children reported eating at home and felt that parents were catering to their children, rather than encouraging them to eat healthy food. Several teachers expressed a desire to find a better way to engage parents with teaching children to eat a healthier diet, and this is a topic worth exploring.

**Conclusions:**

Childcare teachers seemed to accept many of the recommendations suggested by CFOP, NAP SACC and other guidelines that promote healthy eating and physical activity. However, further training in how to allow children to serve themselves food and on how to encourage children to follow their innate satiety cues would be beneficial. Teachers would also benefit from further training in how to incorporate physical activity into the curriculum and on the benefits of engaging with children during unstructured play. Teachers also identified the need to engage parents more effectively to reinforce these behaviors at home.

**References:**


13. Colorado department of public health and environment.


16. NC div of child development- searching resources in child care.